



Changes in consumer behavior during the Covid-19 pandemic

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A thesis submitted for the degree of

Master of Science (MSc) in Management

December 2021

Thessaloniki - Greece

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I hereby declare that the work submitted is mine and that where I have made use of another's work, I have attributed the source(s) according to the Regulations set in the Student's Handbook.

December 2021

Thessaloniki - Greece

ABSTRACT

This dissertation was written as part of the MSc in Management at the International Hellenic University.

The main purpose of this dissertation is to study how the Covid-19 pandemic influenced and changed consumer behavior. More precisely, some of the main questions that will be investigated in this dissertation are the following: consumers buying behavior during the pandemic, what kind of products do they search and purchase the most, how much they spend, what factors influence their buying behavior and attitudes, what has changed in online shopping, how satisfied customers are and what concerns them most when shopping online. In addition, it will be examined whether this universal crisis has raised awareness of the consuming audience about subjects such as climate change, brands that ensure fair working conditions, equal opportunities in health care services, sustainable practices, protection and preservation of the environment. Finally, we will try to find out if there is a tendency to adopt this new way of online shopping and consumer behavior, after the end of the pandemic, or if we will return to the Covid-19-free era conditions. This study can offer further understanding of consumer behavior changes during the COVID-19 pandemic, while the research results can contribute to the development of more suitable marketing strategies.

Keywords: Covid-19 pandemic, consumer behavior, customer satisfaction, online shopping, marketing strategies

Konstantinos Papoutsis

December 2021

ACKNOWLEDGMENTS

To begin with, I would like to thank all the lecturers at the International Hellenic University who guided me and gave me valuable knowledge during my studies.

I am particularly grateful for the assistance given by my thesis supervisor Dr. Maria Argyropoulou for her excellent guidance and support during the planning and development of this research.

I would also like to express my great appreciation to my family for their support and encouragement throughout my studies.

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INTRODUCTION

Consumer behavior is consisted of the processes and actions of choosing, buying, using, or disposing products, services, ideas or experiences, to satisfy customers' needs and desires (Siomkos, 2011). In the era of the Covid-19 pandemic, virtual environments have taken the place of everyday communication, education and other activities, like online shopping, leading to major changes in consumer behavior, thinking and buying (Islam et.al., 2021). Moreover, in times of crisis, new trends in consumer behavior arise, with the most important factors affecting their actions to be the attitude and risk perception (Mehta et.al., 2020). Also, alterations in consumption behavior during crisis may be different among people, depending on their individual characteristics and personality (Hoon Ang et. al. 2001).

Subsequently, other trends in consumer behavior may emerge in periods of crisis, which include simplification of demand due to limited offers that usually tend to continue post-crisis and to people focus on the basic needs in difficult situations (Flatters and Willmott, 2009). Also, according to the research of Hesham et.al. (2021), during the pandemic there is a tension among consumers to buy increased quantities of healthy foods compared to other goods, with women and elderly populations to be more worried about Covid-19 and take more precautions, while the physical visits to shops, restaurants and markets were decreased. The satisfaction derived from online shopping, along with the new work-from-home culture, may lead to growth of future demand, while companies need to find new strategies to approach and attract customers from their home (Masood, 2021).

The goal of this study is to examine consumer behavior changes during the pandemic of Covid-19 and present potential connections among the fear of catching Covid-19 and consumers reactions and attitudes. More specifically, will be investigated how people made their purchases during this health crisis, the amount and categories of products they showed greater priority, their concerns about product characteristics like prices, offers, quality and safety, how much did they spent, what changed in online shopping and whether they will keep on shopping online after this period. Moreover, will be examined how customer satisfaction was affected and has Covid-19 raised consumer awareness about climate change, fair working conditions, equal opportunities in health care services, sustainable practices, protection and preservation of the environment?

This study can offer further understanding of consumer behavior changes during the COVID-19 pandemic, while the research results can contribute in the development of more suitable marketing strategies.

In the first chapter of the dissertation, there will be a literature review of the topic, as readers will be introduced to the definitions and concepts of consumer behavior and consumption, the factors that influence buying behavior and consumers' decision-making process with the 5 levels of Maslow's hierarchy of needs and Kotler's black box. Then, it will be further analyzed how consumer behavior was influenced during the coronavirus pandemic, according to recent literature review, the challenges that retailers and customers had to face, as well as the potential long-term behavioral shifts. In the second part of the dissertation, after chapter three, will be presented the results of a primary quantitative research on a sample of 117 consumers that live in Greece, with its main purpose to study the impact of Covid-19 pandemic on changing consumer behavior, as well as the tendency of people to continue buying online after the end of the pandemic.

1. CONSUMER BEHAVIOR

1.1 DEFINITION OF CONSUMPTION & CONSUMER BEHAVIOR

Consumer behavior as a term is usually used when referring to any human behavior of buying and consuming products and services. Many definitions of consumer behavior have been given, such as "the behavior that consumers display when researching, purchasing, using, evaluating and rejecting products and services, that they expect to meet their needs" or "the field of Marketing that investigates the reasons that lead people to make purchases and their reactions to a transaction process" (Siomkos, 2011). Another definition of consumer behavior is the study of individuals and processes used in the selection, evaluation, use and disposal of goods, services, ideas and experiences, in order to satisfy consumer needs and the effects those choices have on them and on the entire society (Hawkins & Mothersbaugh, 2010).

Marketing executives, before producing and placing a product or service to the market, thoroughly investigate the characteristics of the target group, the factors that influence their purchasing intentions and choices, their consumer behavior and attitude.

Consumption can be defined as the expenditure of households on the purchase of goods and services (Malley & Moutos, 1996). The importance of research and analysis of consumer behavior is growing rapidly in recent years with the globalization of markets, radical technological development and the internet taking an indispensable place into consumers' everyday lives, through social media, virtual environments, communication and e-commerce. Especially now, under the shadow of the Covid-19 pandemic, virtual environments, communication and online purchasing have been a part of consumers' everyday routine. All these changes have significantly changed consumers' buying behavior, while companies in order to survive, have developed new e-marketing strategies, adjusted on the new conditions of the environment.

Consumer behavior research is traditionally organized according to three research approaches, that are used to identify the factors that influence consumer behavior. The first is the decision-making approach, that treats consumers as individuals who follow a series of steps when deciding to buy a product or service (Holbrook & Hirschman, 1982). The second approach is that of consumer experience, which considers that consumers do not always follow a series of steps before deciding to buy a product, but can make an impulsive purchase for fun, to satisfy some fantasy or just for the experience (Siomkos, 2011). The markets that emerge from this approach can be impulsive markets or variety search markets. The third approach is the behavioral effect, based on the assumption that consumers to make a purchase, are influenced by certain powerful forces of the environment such as social environment, economic and cultural conditions, promotions, discount coupons, etc. (Priyanka, 2013).

1.2 FACTORS INFLUENCING CONSUMER BEHAVIOR

Consumers receive everyday a huge amount of information about consumer goods, that help them make the most suitable choices for them to satisfy their personal needs (Ramya & Ali, 2016). The stimuli that consumers receive both from the environment and from the marketing mix significantly affect their consumer behavior and decision-making process. The marketing mix strategy consists of actions related to the price, distribution, promotion and product characteristics. Environmental factors that contribute to the decision-making process are economic, technological, political/legal and cultural. Such factors can be family, friends, culture, informal sources of information and other non-commercial sources. A well-known classification of the

main factors influencing purchasing behavior are cultural, personal and psychological factors. Cultural factors include education, social status, manners, customs and attitude in consumer behavior (Magnisalis, 1997).

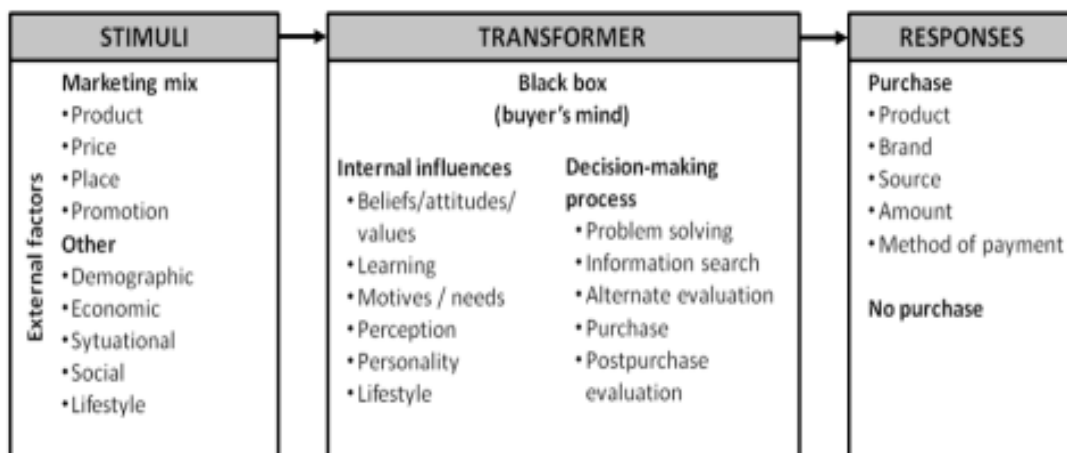
Personal factors include individual characteristics such as age, occupation, economic conditions, lifestyle and personality that influence consumer decisions (Magnisalis, (1997); Ramya & Ali, (2016)). Finally, the consumer purchasing decision-making process is influenced by psychological factors, that consist of motivation, perceptions, knowledge, experience, beliefs and attitudes acquired through learning (Johansson, 1989). Consumers' beliefs and attitudes create positive or negative intentions on their buying decisions. Therefore, a successful marketing strategy must comply with consumer attitudes and behaviors and not try to change them. Today's consumers have higher demands and are value-oriented, while the global economic recessions of recent decades have made them more sensitive to the price of products, without affecting their sensitivity to quality. Therefore, companies need to adjust their marketing strategy and develop quality products at affordable prices at the same time, due to the intense competition and the consumers' increasing purchasing power.

The level of education, knowledge and intelligence of modern consumers is higher, they are extremely informed about the products and services they are interested in purchasing and they are more skeptical about marketing promotions (Korrenkova et.al, 2020). Furthermore, consumer commitment to the brand is lower than in previous years, while there is a growing need for new experiences and emotions that they are trying to satisfy with new innovative products. In the context of technological, socio-demographic, health and urban global development changes, there is a change in customer behavior concerning the spending of free time, shopping, travelling, etc. In addition, the new intense and stressful rhythms of everyday life, lead consumers to buy quickly and always try to save time. According to the study of Korrenkova et.al (2020), the advertising on social networks has a higher impact on consumers than most other types of advertising, but also it is not one of the most trusted nor bothering forms. The development and wider use of the internet and social media has contributed radically to these characteristics of the modern consumer (Gundova & Cvoligova, 2019).

1.3 THE CONSUMER DECISION-MAKING PROCESS

Consumers receive various stimuli from their environment, as well as from marketing actions, that react with their personal characteristics, resulting in the creation of cognitive decision-making processes and to certain reactions. This is the stimulation-response model, that describes the consumer behavior and at the same time provides feedback on information related to the consumer's reactions to the marketing plan and other environmental factors. Next, in Figure 1 is presented this stimulation -response model of consumer behavior. There are many theories and models of consumer decision making with the most known models to be: the financial, the passive, the cognitive and the emotional human (Zellman et.al. 2010). Each human type follows a different process of decision making in consumption, according to the personal characteristics, needs and priorities. Overall, each consumer decision-making model includes three basic categories: inputs, decision-making process, and outputs. So, the general pattern of consumer buying behavior is based on these three basic categories of factors.

Figure 1 Consumer Black Box Behavior



Source: Kotler et.al. (2002) in Wawrzyniak & Furaji (2013)

Maslow in 1954 was the first to classify human needs into five levels, based on the logic that the average consumer will try to satisfy the needs of a level, only if he has fully met the needs of the previous level. So, he classified human needs in a pyramid starting from the base where he placed the normal needs (water, food, air, roof), then the security needs (protection, order, stability), the social needs (affection, friendship, participation, social acceptance), the selfish needs (prestige, social status, self-esteem) and finally at the top of the pyramid he placed the self-realization needs that concern

the goal of accomplishment in life. Consumers collect information either through internal search, such as their memory, or through external search from the environment such as magazines, advertisements, publications, social groups, social media, the internet, etc. (Laroche et.al, 2000). Consumer decision making can be extensive, limited or mechanical. In extensive decision making the consumer evaluates various brands in a detailed and thorough way and collects information so that he can evaluate as many brands as possible. As we have mentioned, consumers make buying decisions in response to various stimuli they receive from the environment and from the marketing mix, that are next analyzed in their mind, named as the "black box", leading to different response. The processes that take place during this process of analysis and transformation in the black box are not clear to researchers. Therefore, while the consumer's reaction to the stimuli is obvious, the process that mediated until the purchasing decision is not so obvious. It is very important that the marketing mix will consider the after-sales consumer behavior, in order to get crucial feedback for marketing strategies.

2.COVID-19 & CONSUMER BEHAVIOR

2.1 THE CHALLENGES OF RETAILERS & CONSUMERS

The effects of the Covid-19 pandemic were far more catastrophic than expected, not only in the medical care that has cost the lives of more than 4.55 million people all over the world so far, but also in the socio-economic and cultural fronts and in our everyday lives (Islam et.al., 2021). This global health crisis has forced people to establish new ways of living, thinking and behaving, to obtain new healthier habits and alienated ways of communicating and to apply new safety measures. All these changes require from organizations to adapt their strategy to these new conditions, while the uncertainty and persisting threat in the near future, require a fresh long-term approach. Previous consumer habits have changed, while companies had to adapt to the new conditions, reevaluate their strategies and infrastructures, adopt improved systems and safety norms and remain up to date, flexible and progressive (Masood, 2021). Online market has gained a significant part of the market share, as most of the companies in order to adjust to the successive quarantine conditions that were imposed went online and customers were obligated to follow the new rules of online shopping, or other forms of shopping, like click in shop or click away (Bhatti et.al, 2020). Sales of e-commerce

increased, as consumers avoided to visit physical stores due to fear of catching Covid-19, or because they were in quarantine, or they were working from home, while the media usage also increased in this time (Andrienko, 2020).

Also, the household consumption during the pandemic has remained at the same levels, but priorities and preferences that consumers showed for the products they purchased were rearranged (Masood, 2021). Retailers and brands face many short-term challenges, such as those related to health and safety, the supply chain, the workforce, cash flow, consumer demand, sales, and marketing (Donthu & Gustafsson, 2020). Nevertheless, facing successfully those challenges will not guarantee a promising future, or any future at all, as after the pandemic a different world will emerge. In the meanwhile, online communication, online entertainment, and online shopping are seeing unprecedented growth. During this period, social distancing and isolation have enhanced the feeling of loneliness, that is often related to depression, poorer cognitive skills and performance, negative or even aggressive mood and behavior, such as increased incidences of domestic violence, sales of firearms and criminality (Campbell, 2020). On the other hand, there is the other side of social distancing that has created more positive types of behavior, like development of new skills, improving the way of living by acquiring healthier habits and taking care of ourselves and our loved ones. All these emotional changes and disruption of people's daily habits have significantly altered consumer behavior, leading companies to reconsider their business strategies.

Emergency, crisis situations, like the covid-19 pandemic, create sudden scarcity effect, disruption of demand and consumer behavior, like panic buying and stockpiling of emergency products like toilet paper, cleaning products, hand sanitizers, masks, pasta and canned food, that in turn lead to negative supply performance (Ivanov, 2020). All these containment and self-protection measures that governments all over the world had to enforce to their people, influenced the way consumers shop, product prices, the kind and quantities of products they purchase, their habits and behaviors (Pantano et.al, 2020). Scarcity of products may possibly lead to an increase in their perceived value and price or to a decrease in the relevance of the context of purchase (Shah et.al, 2015). In addition, consumers typically deal with one-time stock-outs by changing brand or store, but the repeated deficiency of products may lead to deeper changes in consumers' preferences, even after the return to normality. Moreover, governments' regulations to limit gatherings of people, created long queues outside stores, hours-long waiting times for phone orders, delayed receipt of products from online shopping or unavailable

appointments for services like haircuts (Pantano et.al, 2020). Retailers, in order to face those challenges adopted measures like limiting the number of items to buy per consumer, informing clients about the availability of products, implementing new types of online shopping, home delivery and other online services like virtual queue to handle orders and customer satisfaction more efficiently (Pantano et.al, 2020).

2.2 CHANGES IN CONSUMER BEHAVIOR

According to the previous literature review, the challenges that are currently facing consumers and retailers, are related to the consequences of the necessary regulations and measures that countries around the world have implemented in order to prevent the pandemic spread, such as full or partial lockdown, social distancing and self-protection measures, that have altered consumer behavior, product availability, prices and demand. These strict measures have proven to be quite effective in containing the further spread of the virus, but on the other hand they caused an unprecedented shock on economies and labor markets and severely affected societies and global economies. So, the COVID-19 outbreak has unpredictably altered the way and conditions of work, communication and shopping, more than any other disruption in this decade. Consumer behavior and attitudes have been greatly influenced by this global health crisis, affecting significantly their spending levels (Song et.al, (2020); Di Crosta et.al, (2021); Hesham et.al, (2021)).

More specifically, consumer behavior, especially during the first peak period of the contagion, was shifted toward necessities and was guided by anxiety and COVID-related fear, while consumer behavior towards non-necessities was predicted by depression (Di Crosta et.al, 2021). Sales of necessities have seen a significant increase and consumer priorities have been focused more on satisfying basic needs like food, hygiene and cleaning products. Also, human motives come from their biological instincts for survival, so when faced with the threat of death from the epidemic, human lives are the most important thing and having taken care of all the necessities is a crucial factor (Hesham et.al, 2021).

Furthermore, according to the study of Di Crosta et.al. (2021), where participants were asked to compare their current and their pro-Covid consumer behavior, their shift toward necessities and non-necessities was influenced by personality traits, perceived economic stability, and self-justifications for purchasing. Furthermore, priorities in shopping have become more centered on necessities, but also there was reported an

increase in the spending levels of non-necessities (Song et.al, (2020); Di Crosta et.al, 2021). Many consumers were misled by their social groups and stockpiled non-necessities that didn't have any relevance with prevention against the pandemic (Song et.al, 2020). As a result, people were misled about epidemic prevention and didn't think rationally before purchasing, causing waste of resources, shortage of products and distribution problems. Also, the study of Di Crosta et.al. (2021) indicated a differentiation of demographic and psychological factors between necessities and non-necessities, as men, higher educated and younger people reported a higher tendency to impulsive buying of non-necessities, income have a positive effect on necessities and feelings and personality traits have a considerable role in predicting changes in consumer behavior.

Concerning the products, they have been purchasing, cleaning products and junk food had an enormous increase in their sales, while consumers show greater sensitivity and concern about recycling (Donthu & Gustafsson, 2020). Also, as it was expected, there has been a subconscious and compulsive tendency of consuming products related to the prevention against the virus, like protective gear and sanitizing gel and wipes, while on the contrary, sales of certain product categories decreased, like clothes, shoes and makeup, and others increased like entertainment products and homeware (Degli et.al, 2021). So, it is clear that Covid-19 changed the consumption patterns. Situations that can threaten personal health and upset social lives, such as a pandemic, have been proven to lead to major consumer behavioral changes. Such examples are, the worldwide trends of stockpiling essentials, panic buying, extensive use of internet and social media and escaping to rural areas, that seem to prevail in large scales during this period, driven by feelings of fear, anxiety and loneliness (Lins & Aquino, 2020). So, these primitive behaviors interfere with rational consumer decision-making, having an immense impact on their usual behavior.

According to Maheswaran et.al. (2004), consumers in times when their safety is in danger, the main motive of buying is to alleviate the negative emotions of fear and anxiety and gain more security, comfort, and momentarily escape. Another study has shown that consumers may become more passive in response to extreme stress situations, and this can lead to a decrease in purchasing (Landau et.al, 2011). Other consumer behavioral changes can be sudden impulsive or compulsive buying or over-purchasing, that can be driven by depressive mood that is proven to be a potential result of extensive stress. Nevertheless, a differentiation between necessity and non-necessity

products seems to exist in response to stressful events, as consumers may be more willing to spend money on necessities, while on the opposite side, they may increase impulsive non-necessities shopping, as an emotional strategy to relief the difficulty of the situation, manage stress and other negative feelings and restore control of their lives (Durante & Laran, 2016).

The internet plays a central role in our everyday lives during this period, from telework, education, communication, socializing and consuming products and services. The current social distancing and self-protection measures has deprived the exposure of consumers to many stimuli of everyday life, like touching, smelling, tasting, trying products before purchasing, leading them to rely on what they see online to make buying decisions (Donthu & Gustafsson, 2020). The new habits that consumers have obtained during this period of emergency situations, like panic buying and stockpiling, have impacted on their price sensitivity, as they are willing to pay for products whose price has risen significantly (Pantano et.al, 2020). According to previous literature there is a negative relationship between customer satisfaction and waiting time (Anic et.al, 2011). However, during the pandemic, where consumers had to wait patiently long queues and long waiting times for orders, in the emergency context of this period their satisfaction is not expected to be affected negatively, at least short-term (Pantano et.al, 2020). Another result of the lower accessibility of store premises, combined with consumers' higher health concerns, led consumers, even the older and less digitally savvy ones, to search for alternative distribution channels, like online shopping and home delivery. For instance, online grocery has seen a tremendous increase during the COVID-19 emergency, that many shops had even to create online queues or to take down their online websites to deal with excessive demand (Carroll, 2020).

2.3 LONG-TERM BEHAVIORAL SHIFTS

Such unpredictable and rare catastrophic events, like the Covid-19 outbreak, have happened in the past and will happen in the future and there should be measures to dampen their effects on society. It is very difficult to predict the long-term economic, behavioral, or societal effects of a pandemic outbreak, as these aspects have not been studied to a great extent in the past. The period after a pandemic, has been associated with low interest in investment and saving capital, leading to reduced economic growth (Jorda et.al, 2020). Moreover, behavioral changes are connected to self-protection measures, such as social distancing and the use of mask and frequent sanitizing, while

on a societal level there are limited efforts to prepare for pandemic outbreaks, as the main principle of our society is efficiency and economic gain rather than safety and preserving future generations. Also, it is possible that many countries will stay behind in their economic growth, leading them to more poverty.

The pandemic outbreak has forced many companies to close, leading to an unprecedented disruption of commerce in most industry sectors and reduced consumption. After such a long period of commerce disruption, may predict future increase in demand and consumer buying. So, companies should be prepared for a potential increase in consumption rate, as a result of consumers' needs to restore their normal levels of psychological arousal in retail settings, although this may be for a short time (Pantano et.al, 2020). The question is what happens to people when "real life" before covid-19 returns? Will consumers continue to use the internet in the future for their purchases and how did this pandemic change their long-term consumer attitudes concerning their sensitivity about issues such as protecting the environment? Finally, the measures adopted by both retailers and governments may potentially lead to higher acceptance of biometric surveillance measures, like body scanning, GPS tracking, etc., that might further alter privacy perceptions over time, that before would cause consumers to be very concerned about their privacy (Pantano et.al, 2020).

3. METHODOLOGY

3.1 RESEARCH DESIGN

The methodology that was used is quantitative research and analysis, with a questionnaire as a research measuring instrument to collect primary data from Greek consumers. The research design was inspired by some similar researches we studied in our literature review, like the one of Hesham et.al (2021) and Di Crosta et.al (2021). The questionnaire was developed with Google Forms and was distributed online, through email and social media. Inclusion criteria for participating in the survey, were to be over 18 years old, live in Greece and have been making online purchases during the period of the Covid-19 pandemic. Data were collected via a web-based survey, that was available from October 16 2021, to October 24 2021, a period when the vaccination program against the pandemic had progressed significantly, with about 6,200,000 Greek citizens having completed their vaccination, but yet, with no visible end to the pandemic. Greece, during that period was facing the 4th pandemic wave of Covid-19,

as most of the European countries, which means that consumers have had great experience of the consequences of this health crisis.

At the beginning of the questionnaire, socio-demographic information was collected, including age, gender, education, annual income and marital status. All the questions about demographics were multiple choices with 2 to 4 categories, meaning they are categorical variables, except the place of residence that was an open question. Then, questions on spending levels and consumer behavior during the Covid-19 pandemic compared to the period before, were presented, separating necessities and non-necessities. Finally, a series of more specific questions concerning fear, exposure, risk perception and prophylactic behaviors were addressed, to capture the effect of the Covid-19 pandemic. All the questions were measured in a five-point Likert scale, with 1 indicating totally disagree and 5 indicating totally agree. As in most social science surveys Likert scales are considered as scale variables, so in our research for the convenience of the results, all variables measured in five-point Likert were considered to be scale variables.

All the questions, as well as the information and consent form, were designed to be mandatory to answer in order to proceed and submit the questionnaire successfully, while there was the possibility of leaving at any time without any restriction. The research was based on the ethical guidelines, of respecting the participants' anonymity and confidentiality, using acceptable research procedures and methodologies and ensuring that the participants were not exposed to any risk. The ethical guideline that was applied consisted of five basic principles, the first one of free and informed consent, next the principle of non-deception of participants, the one of confidentiality and protection of personal data, the principle of protection against any possible harm and finally the principle of avoiding any potential conflict of interest (Paraskevopoulou-Kollia, 2008). In this current work, for data collection and analysis all these five principles were strictly followed.

The purpose of the data analysis was to discover the changes in consumer behavior during the Covid-19 pandemic and the perspectives of online shopping in Greece. According to the initial literature review of the dissertation, we expected to find significant changes in consumer behavior during the period of the Covid-19 pandemic. Consumers have turned into online shopping, mainly purchasing essential goods like

food, products of personal and home care, pharmaceutical products, fitness items and electrical devices. The research analysis of the dissertation will focus on investigating the relationship among fear of catching Covid-19 and different aspects of consumer behavior, as well as consumers' intention to keep on online shopping after the end of the pandemic.

3.2 ETHICAL ISSUES

Research activities were bound by ethical guidelines: respect to the anonymity and confidentiality of every participant, use of acceptable research procedures and methodologies and safeguard that participants are not exposed to any risk (Feldman, et.al., 2008). The ethical guidelines that were adopted to this quantitative research with the use of the questionnaire, consisted of five basic principles. The first was the principle of free and informed consent, which means the participation of individuals in the research was completely voluntary. All the participants were informed from the beginning, that they could lead the survey any time they wanted, without any consequence.

Next, the second principle was to avoid the use of deception of participants, that is the researchers must disclose all information relevant to the research. For this purpose, in the information form, there was a full text with all the necessary information that the consumers should know, in order to be a part of the survey, like the purpose of the dissertation, the use of data, the importance of their participation and information about the researcher. The next principle concerned the confidentiality that governed the investigation and required the protection of the personal data and identity of the interviewees. This is followed by the principle of protection against possible harm, where researchers must protect participants, from the dangers that may arise from conducting the research. Finally, the fifth principle was to avoid any conflicts of interest, that may arise in cases where researchers may have other interests, besides gaining knowledge through research. In this dissertation, for data collection and analysis, all these five basic principles of ethics mentioned were adhered to.

3.3 PARTICIPANTS & DEMOGRAPHICS

The sample used in the survey was convenient, due to the exceptional situation of the COVID-19 pandemic and the time constraints to conduct the research. Therefore,

participants were recruited through word-of-mouth, email and social media. A total of 120 participants were initially recruited. All, the participants were informed about the inclusion criteria and the purpose of the survey and they all provided their written informed consent at the beginning of the survey. Also, they were informed about the anonymity of their answers, while they participated voluntarily, without receiving any form of compensation. Moreover, they were aware that they could leave the survey at any point, without any consequence. From the initial sample of 120 people, 3 did not meet the inclusion criterion of living in Greece, so they were excluded from the sample, that was finally downsized to 117 people. In the following Tables, are presented the socio-demographic characteristics of our sample, according to their answers in the questionnaire. As we can see, 53 men and 64 women participated in the study, most of them were in the age groups of 29-39 and of 18-28, while the vast majority of the sample was single (71.8%), with master's degree (69.2%). Their annual income was evenly distributed across all categories, while most of the participants live in major urban centers, like Thessaloniki, Athens and Larissa.

Table 3.1 Gender

	Frequency	Percent	Valid Percent	Cumulative Percent
Valid male	53	45,3	45,3	45,3
female	64	54,7	54,7	100,0
Total	117	100,0	100,0	

Source: Own processing

Table 3.2 Age

	Frequency	Percent	Valid Percent	Cumulative Percent
Valid 18-28	39	33,3	33,3	33,3
29-39	60	51,3	51,3	84,6
40-50	11	9,4	9,4	94,0
>50	7	6,0	6,0	100,0
Total	117	100,0	100,0	

Source: Own processing

Table 3.3 Marital status

	Frequency	Percent	Valid Percent	Cumulative Percent
Valid married	29	24,8	24,8	24,8
divorced	4	3,4	3,4	28,2
single	84	71,8	71,8	100,0
Total	117	100,0	100,0	

Source: Own processing

Table 3.4 Annual Income

	Frequency	Percent	Valid Percent	Cumulative Percent
Valid <=5.000	22	18,8	18,8	18,8
<=10.000	25	21,4	21,4	40,2
<=20.000	43	36,8	36,8	76,9
>20.000	27	23,1	23,1	100,0
Total	117	100,0	100,0	

Source: Own processing

Table 3.5 Education

	Frequency	Percent	Valid Percent	Cumulative Percent
Valid doctoral degree	2	1,7	1,7	1,7
master degree	81	69,2	69,2	70,9
university degree	28	23,9	23,9	94,9
primary degree	6	5,1	5,1	100,0
Total	117	100,0	100,0	

Source: Own processing

3.4 DATA COLLECTION & ANALYSIS

Overall, after collecting and classifying the answers, the researcher analyzes the data, compares, interprets, understands and comes to relevant conclusions. For the data analysis was used the software program of IBM SPSS Statistics 22. Then, comparisons were made, among the research results and the literature review that was examined in the first part of the dissertation. When we examined the data, we did not find any careless responses, such as giving the same response to all questions, but there were 3

participants that their residence was not in Greece, so we had to exclude them from the survey. Furthermore, we had to apply reverse recoding to the variable of potential recovery from Covid-19, in order to measure efficiently the fear of Covid-19. Then, we conducted reliability check to all the variables' categories with the Cronbach's Alpha test, in order to ensure the reliability of grouping and create the final variables. In the following **Table 3.6** are presented the results from Cronbach's Alpha test, to present and explain how the scales variables were grouped and developed, from the 30 questions of the questionnaire. It is important here to mention, that in order to group and develop the final variables, we didn't use factorial analysis, but according to the reliability results we decided to group and compute the new variables, by calculating their average score in the software program of SPSS Statistics. Also, we wanted to keep certain variables separate and not include them in the grouping procedure, as we found it interesting to investigate the influence of Covid-19 on them separately and clearly. In a future repetition of this research, could be used factorial analysis and group the variables differently.

Table 3.6 Cronbach's Alpha test for grouping variables

Reliability Statistics					
Cronbach's Alpha	,697				
Item-Total Statistics	Scale Mean if Item Deleted	Scale Variance if Item Deleted	Corrected Item-Total Correlation	Cronbach's Alpha if Item Deleted	Variable created
Fear of people were infected by Covid-19	4.15	.780	.550		Fear of catching Covid-19
Fear of people will get infected by Covid-19	3.75	1.257	.550		
Reliability Statistics					
Cronbach's Alpha	,832				
Item-Total Statistics	Scale Mean if Item Deleted	Scale Variance if Item Deleted	Corrected Item-Total Correlation	Cronbach's Alpha if Item Deleted	Variable created
Larger Amounts of Necessities	6.24	4.908	.732	.726	Purchasing Necessities
Necessities Didn't Need Before	6.17	5.298	.676	.782	

Spend more on Necessities	6.19	5.326	.667	.790	
Reliability Statistics					
Cronbach's Alpha	.882				
	Scale Mean if Item Deleted	Scale Variance if Item Deleted	Corrected Item-Total Correlation	Cronbach's Alpha if Item Deleted	Variable created
Larger Amounts of Non-Necessities	8.42	9.470	.756	.844	Purchasing Non- Necessities
Non-Necessities seemed useful	8.30	11.108	.667	.877	
Non-Necessities Didn't Need Before	8.45	9.509	.794	.828	
Spend more on Non-Necessities	8.57	9.505	.766	.840	
Reliability Statistics					
Cronbach's Alpha	.707				
	Scale Mean if Item Deleted	Scale Variance if Item Deleted	Corrected Item-Total Correlation	Cronbach's Alpha if Item Deleted	Variable created
Stockpile Necessities	2.26	1.300	.551		Stockpiling
Stockpile Non-necessities	2.79	1.618	.551		
Reliability Statistics					
Cronbach's Alpha	.817				
	Scale Mean if Item Deleted	Scale Variance if Item Deleted	Corrected Item-Total Correlation	Cronbach's Alpha if Item Deleted	Variable created
Panic Purchases	5.39	4.844	.650	.767	Panic buying
Impulsive buying Necessities	4.86	4.567	.727	.686	
Impulsive buying Non-Necessities	5.09	5.241	.632	.784	
Reliability Statistics					
Cronbach's Alpha	.620				

	Scale Mean if Item Deleted	Scale Variance if Item Deleted	Corrected Item-Total Correlation	Cronbach's Alpha if Item Deleted	Variable created
Online Purchases during Covid-19	3.84	1.637	.491		Online purchases
Online Purchases Increased during Covid-19	4.30	.694	.491		
Reliability Statistics					
Cronbach's Alpha	,853				
	Scale Mean if Item Deleted	Scale Variance if Item Deleted	Corrected Item-Total Correlation	Cronbach's Alpha if Item Deleted	Variable created
Shopping Experience Satisfaction	3.68	1.066	.744		Shopping experience satisfaction
Online Shopping Experience Satisfaction	3.59	1.123	.744		
Reliability Statistics					
Cronbach's Alpha	,736				
	Scale Mean if Item Deleted	Scale Variance if Item Deleted	Corrected Item-Total Correlation	Cronbach's Alpha if Item Deleted	Variable created
Concern of Product Access	13.82	10.166	.510	.687	Product concerns
Concern of Product Availability	13.63	9.890	.590	.654	
Concern of Product Prices	13.10	11.489	.431	.714	
Concern of Product Offers	13.36	10.663	.496	.692	
Concern of Product Quality and Safety	13.23	10.886	.465	.703	
Reliability Statistics					
Cronbach's Alpha	,863				
	Scale Mean if Item Deleted	Scale Variance if Item Deleted	Corrected Item-Total Correlation	Cronbach's Alpha if Item Deleted	Variable created

Environmental concerns	3.63	1.217	.764		Environmental & Social concerns
Corporate Social Responsibility	3.52	1.493	.764		

Source: Own processing

Next, in **Table 3.7** are presented the results of the Descriptive Statistics analysis for all the scale variables, that can reveal useful information about their mean, median, standard deviation, skewness and kurtosis. Moreover, from the descriptive statistics results we can see that all the variables, except the potential recovery from Covid-19, have skewness and kurtosis within the range of [-2, +2], that can lead to the first assumption of having variables that are close to normal distribution. Also, we examined the histogram and boxplot results to check for outliers. Furthermore, we conducted the Normality test of Shapiro-Wilk, to further examine if the variables are close to normal distribution and its results are presented in **Table 3.8**. According to the results, the significance of Shapiro-Wilk is <0.05 for all the variables, except the consumer concerns about the products and the statistic criterion of Shapiro-Wilk is close to 0.9 for all the variables, so we can say that they do not approach to a normal distribution and we must use the non-parametric criterion of Spearman's rho.

Table 3.7 Descriptive Statistics

		General Consumer Change	Online Purchases before Covid-19	Online Purchases will continue after Covid-19	Purchasing Frequency	Amount of Shopping Cart	Vaccination and Measures Effectiveness	Potential Recovery from Covid-19	Fear_Covid 19
N	Valid	117	117	117	117	117	117	117	117
	Missing	0	0	0	0	0	0	0	0
Mean		3.62	3.71	4.08	2.97	2.88	4.34	1.91	3.9487
Median		4.00	4.00	4.00	3.00	3.00	5.00	2.00	4.0000
Std. Deviation		.889	1.168	1.010	1.148	1.161	.873	.896	.88421
Skewness		-.506	-.569	-.923	-.193	.204	-1.126	1.340	-.689
Std. Error of Skewness		.224	.224	.224	.224	.224	.224	.224	.224
Kurtosis		.563	-.719	.204	-.859	-.650	.288	2.771	.158
Std. Error of Kurtosis		.444	.444	.444	.444	.444	.444	.444	.444

		Consuming_Necessities	Consuming_NonNecessities	Stockpiling	Panic_Purchasing	Online_Buying_During_Covid19	Shopping_Satisfaction	Consumer_Concerns_Products	Environmental_Social_Concerns
N	Valid	117	117	117	117	117	117	117	117
	Missing	0	0	0	0	0	0	0	0
Mean		3.0997	2.8120	2.5256	2.5584	4.0684	3.6325	3.3573	3.5769
Median		3.3333	3.0000	2.5000	2.6667	4.5000	4.0000	3.4000	3.5000
Std. Deviation		1.09270	1.02863	1.06238	1.05757	.91892	.97687	.78908	1.09193
Skewness		-.208	-.106	.272	.208	-.824	-.204	-.291	-.534
Std. Error of Skewness		.224	.224	.224	.224	.224	.224	.224	.224
Kurtosis		-.881	-.884	-.429	-.765	-.227	-.804	.196	-.415
Std. Error of Kurtosis		.444	.444	.444	.444	.444	.444	.444	.444

Source: Own processing

Table 3.8 Tests of Normality

	Kolmogorov-Smirnov ^a			Shapiro-Wilk		
	Statistic	df	Sig.	Statistic	df	Sig.
General Consumer Change	.240	117	.000	.868	117	.000
Online Purchases before Covid-19	.231	117	.000	.865	117	.000
Online Purchases will continue after Covid-19	.256	117	.000	.816	117	.000
Purchasing Frequency	.190	117	.000	.906	117	.000
Amount of Shopping Cart	.185	117	.000	.912	117	.000
Vaccination and Measures Effectiveness	.339	117	.000	.739	117	.000
Fear_Covid19	.207	117	.000	.897	117	.000
Consuming_Necessities	.125	117	.000	.959	117	.001
Consuming_NonNecessities	.116	117	.001	.963	117	.003
Stockpiling	.122	117	.000	.937	117	.000
Panic_Purchasing	.112	117	.001	.957	117	.001
Online_Buying_During_Covid19	.185	117	.000	.872	117	.000
Shopping_Satisfaction	.151	117	.000	.929	117	.000
Consumer_Concerns_Products	.096	117	.010	.983	117	.156
Environmental_Social_Concerns	.147	117	.000	.929	117	.000
Potential_Recovery_Covid-19	.284	117	.000	.820	117	.000

Source: Own processing

We investigated the relationship between the fear of catching Covid-19 and the change in consumer behavior using the correlation coefficient analysis “r” and linear regression. Finally, a research was conducted to find potential association of

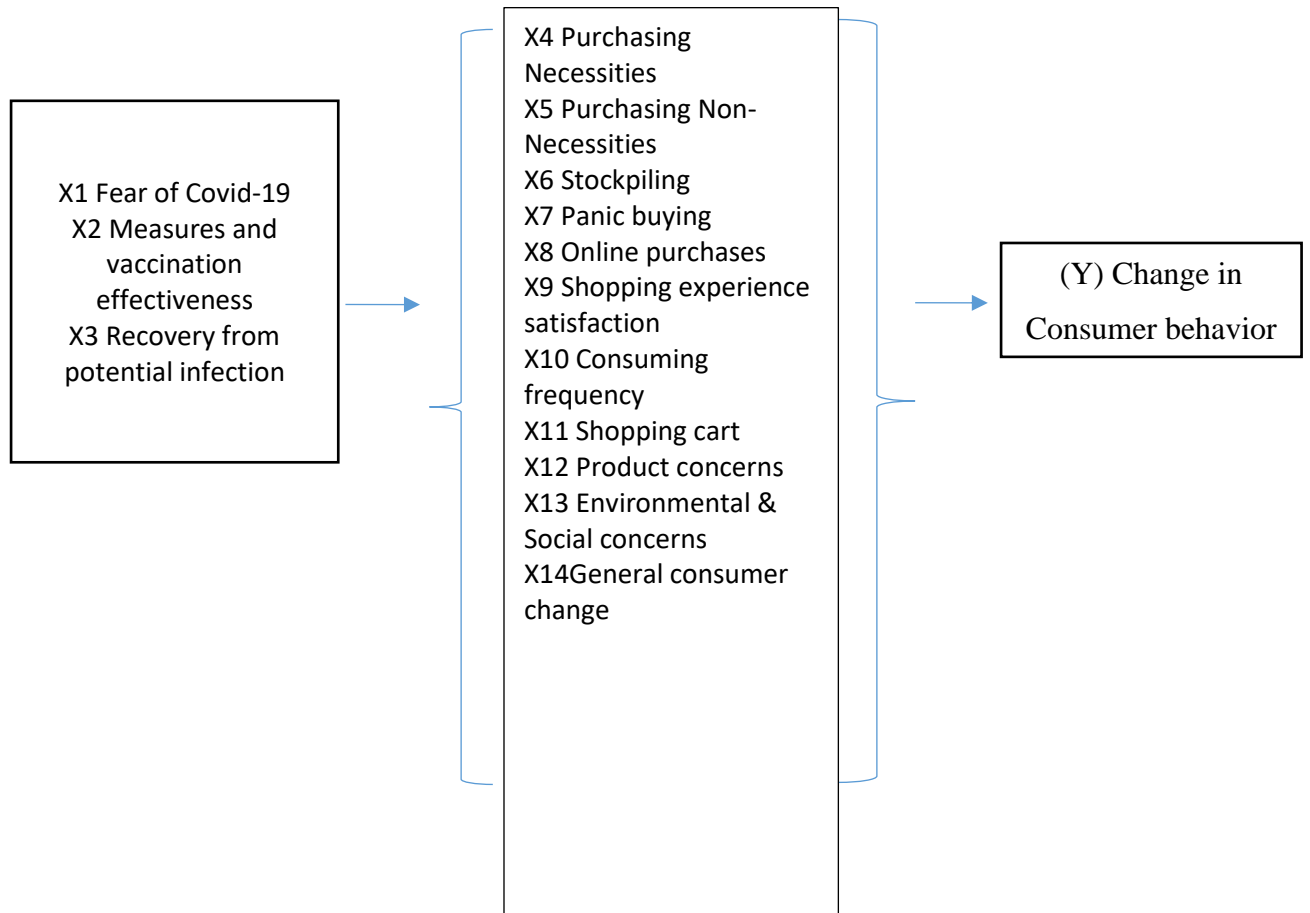
consumers' intention to continue online purchasing after the end of the pandemic with the variables of online purchasing before and during the pandemic, potential recovery from Covid-19 and vaccination and measures effectiveness, using the correlation coefficient analysis "r" and linear regression. In the next **Figure 3.1**, is depicted the relationship model among the variables we investigated, in order to understand the data analysis that was followed. The purpose of the survey was to examine the effect of Covid-19 on some main elements of consumer behavior, that according to the literature review seem to change in crisis situations, like the Covid-19 pandemic. The aspects that were examined include: purchasing of necessities and non-necessitates, stockpiling, panic buying, online purchases, customer satisfaction, consuming frequency, shopping cart, consumer concerns about products, environmental and social concerns.

The statistic method that was applied was correlation coefficient Matrix with Spearman's rho and linear regression, in order to identify the correlations among the factor of fear of Covid-19 and the different aspects of consumer behavior, as well as the predictability of online buying after the end of the pandemic. The research questions that were examined are the following: "Is there a correlation between the fear of Covid-19 pandemic and the change in consumer behavior?" and "can online purchasing be explained by the variables of online purchasing before and during the pandemic, potential recovery from Covid-19 and vaccination and measures effectiveness?". After checking the conditions for running Spearman's rho, we calculated the correlation Matrix, in order to identify the direction (positive or negative) and the degree (weak, moderate, strong) of correlation among the variables. Next, are presented the research hypothesis.

H₀₁: There is positive correlation among fear of catching Covid-19 and aspects of consumer behavior.

H₀₂: Consumers' intention to keep on buying products online after the end of the pandemic, will be affected by the variables of fear of catching Covid-19, online purchasing before and during the pandemic, potential recovery from Covid-19 and vaccination and measures effectiveness

Figure 3.1 Fear of Covid-19 & Change in Consumer Behavior



4. RESEARCH

To investigate the way that the pandemic of Covid-19 affected different aspects of consumer behavior, we conducted correlation coefficient Matrix with Spearman's rho. As we have already mentioned in the methodology section, the questions were measured in a 5-point Likert scale, with 1 indicating totally disagree and 5 indicating totally agree. So, an increased score in the variable of Fear of Covid-19, meant that the participant is very afraid of catching the virus. The results of the analysis are presented in **Table 4.1**. For a start, there is no statistically significant correlation among the variable of vaccination and measures effectiveness with none of the aspects of consumer behavior.

The fear of catching Covid-19, as we can see is related to the variables of online purchasing after Covid-19 ($p=0.024$), consuming necessities ($p=0.046$), panic purchasing ($p=0.029$), consumer concerns about products ($p=0.00$) and online buying during Covid-19 ($p=0.00$). Last, the variable of potential recovery from Covid-19 seems to be related only to general consumer change ($p=0.021$). All correlations among our

variables are positive, which means they are changing in the same direction, except the relationship between potential recovery from Covid-19 and general consumer change, while there is weak relationship among them ($r < 0.3$), except a moderate relationship between fear of Covid-19 with consumer concerns about products ($r = 0.360$) and online buying during Covid-19 ($r = 0.345$). So, as a conclusion for the correlation analysis, there seems to be a positive relationship among the fear of catching Covid-19 and online purchasing during and after Covid-19, consuming necessities, panic purchasing and consumer concerns about products. This means that, as fear of the virus is increasing, so are the aspects of consumer behavior we mentioned.

Table 4.1 Correlations of catching Covid-19 and consumer behavior aspects

Spearman's rho		General Consumer Change	Online Purchases before Covid-19	Online Purchases will continue after Covid-19	Purchasing Frequency	Amount of Shopping Cart	Potential Recovery from Covid-19	Vaccination and Measures Effectiveness	Fear_Covid19	Consuming_Necessities	Consuming_NonNecessities	Stockpiling	Panic Purchasing	Online_Buying_During_Covid19	Shopping_Satisfaction	Consumer_Concerns_Products	Environmental_Social_Concerns
Potential Recovery from Covid-19	Correlation Coefficient	-,214*	,023	,026	,080	,173	1,000	,133	,142	,047	-,114	,137	,100	,032	,122	,017	-,014
	Sig. (2-tailed)	,021	,809	,780	,394	,062		,154	,127	,613	,221	,140	,285	,733	,190	,856	,877
	N	117	117	117	117	117	117	117	117	117	117	117	117	117	117	117	117
Vaccination and Measures Effectiveness	Correlation Coefficient	-,105	,127	,105	,018	,073	,133	1,000	,094	,120	-,084	,021	,049	,028	,047	-,098	,175
	Sig. (2-tailed)	,261	,172	,258	,845	,433	,154		,315	,198	,369	,821	,602	,766	,618	,295	,058
	N	117	117	117	117	117	117	117	117	117	117	117	117	117	117	117	117
Fear_Covid19	Correlation Coefficient	,048	-,016	,209*	,138	,164	,142	,094	1,000	,185*	,146	,143	,202*	,345**	-,012	,360**	,170
	Sig. (2-tailed)	,605	,866	,024	,137	,078	,127	,315		,046	,117	,125	,029	,000	,894	,000	,067
	N	117	117	117	117	117	117	117	117	117	117	117	117	117	117	117	117

** . Correlation is significant at the 0.01 level (2-tailed).

* . Correlation is significant at the 0.05 level (2-tailed).

Source: Own processing

Moreover, after estimating the correlations among our variables, we investigated which of the related aspects of consumer behavior are better predicted by the fear of catching covid-19. For this purpose, we conducted linear regression analysis and its results are presented in **Table 4.2**. The linear regression model among the variables is statistically significant and as was expected from the weak to medium correlations, fear of catching Covid-19 may predict the variability of the dependent variables but at a very low degree. More specifically, fear of Covid-19 can explain 4.9% of online purchases after the pandemic, 3.9% of consuming necessities, 4.4% of panic purchasing, 14.7% of consumers' concerns about products and 10.1% of online buying during the pandemic. So, according to the results fear of covid-19 can explain at a significant but very low-level certain aspects of consumer behavior, with a bigger influence on their concerns about products and online buying during this period.

Table 4.2 Linear Regression of catching Covid-19 and consumer behavior aspects

Online Purchases will continue after Covid-19						
Model Summary	R	R Square	Adjusted R Square	Std. Error of the Est.	Durbin-Watson	
1	,222 ^a	.049	.041	.989	2.108	
Model ANOVA		Sum of Squares	Df	Mean Square	F	Sig.
1	Regression	5.813	1	5.813	5.943	,016 ^b
	Residual	112.494	115	.978		
	Total	118.308	116			
Model Coefficients		Unstandardized Coefficients		Std Coef.	t	Sig.
		B	Std. Error	Beta		
1	(Constant)	3.077	.420		7.324	.000
	Fear_Covid19	.253	.104	.222	2.438	.016
Consuming_Necessities						
Model Summary	R	R Square	Adjusted R Square	Std. Error of the Est.	Durbin-Watson	
1	,199 ^a	.039	.031	1.07557	2.190	
Model ANOVA		Sum of Squares	Df	Mean Square	F	Sig.
1	Regression	5.466	1	5.466	4.725	,032 ^b
	Residual	133.037	115	1.157		
	Total	138.503	116			
Model Coefficients		Unstandardized Coefficients		Std Coef.	t	Sig.
		B	Std. Error	Beta		
1	(Constant)	2.130	.457		4.662	.000

	Fear_Covid19	.245	.113	.199	2.174	.032
Panic_Purchasing						
Model Summary	R	R Square	Adjusted R Square	Std. Error of the Est.	Durbin-Watson	
1	,211 ^a	.044	.036	1.03832	2.167	
Model ANOVA		Sum of Squares	Df	Mean Square	F	Sig.
1	Regression	5.757	1	5.757	5.340	,023 ^b
	Residual	123.982	115	1.078		
	Total	129.740	116			
Model Coefficients		Unstandardized Coefficients		Std Coef.		
		B	Std. Error	Beta	t	Sig.
1	(Constant)	1.564	.441		3.545	.001
	Fear_Covid19	.252	.109	.211	2.311	.023
Consumer_Concerns_Products						
Model Summary	R	R Square	Adjusted R Square	Std. Error of the Est.	Durbin-Watson	
1	,384 ^a	.147	.140	.73188	2.306	
Model ANOVA		Sum of Squares	Df	Mean Square	F	Sig.
1	Regression	10.626	1	10.626	19.838	,000 ^b
	Residual	61.600	115	.536		
	Total	72.226	116			
Model Coefficients		Unstandardized Coefficients		Std Coef.		
		B	Std. Error	Beta	t	Sig.
1	(Constant)	2.006	.311		6.451	.000
	Fear_Covid19	.342	.077	.384	4.454	.000
Online_Buying_During_Covid19						
Model Summary	R	R Square	Adjusted R Square	Std. Error of the Est.	Durbin-Watson	
1	,317 ^a	.101	.093	.87521	2.362	
Model ANOVA		Sum of Squares	Df	Mean Square	F	Sig.
1	Regression	9.864	1	9.864	12.878	,000 ^b
	Residual	88.089	115	.766		
	Total	97.953	116			
Model Coefficients		Unstandardized Coefficients		Std Coef.		
		B	Std. Error	Beta	t	Sig.
1	(Constant)	2.766	.372		7.440	.000
	Fear_Covid19	.330	.092	.317	3.589	.000

Source: Own processing

Finally, we examined how consumers' intention to keep on buying products online after the end of the pandemic, will be affected by the variables of fear of catching Covid-19, online purchasing before and during the pandemic, potential recovery from Covid-19 and vaccination and measures effectiveness. First, from the correlation Matrix presented in **Table 4.3**, we can see that the potential of keep on purchasing online after the end of the pandemic is statistically significant and positively related to the online purchasing before ($r=0.504$, $p= 0.00$) and during this period ($r=0.388$, $p= 0.00$) with a medium to high association, as well as to fear of Covid-19 with a weaker association ($r= 0.209$, $p=0.024$). Then, we conducted linear regression among the related variables and the results are shown in **Table 4.4**. According to the results of the regression, it seems that the model is statistically significant only for the variables of online purchasing before and during the pandemic of Covid-19 and can be explained in a weak to medium level of 28.5%. In other words, the results for the second hypothesis show that as the score of online shopping before and during Covid-19 and of fear of Covid-19 increases, so does increase the potential of keep on shopping online after the end of the pandemic.

Table 4.3 Table Correlations of online purchases after Covid-19

Spearman's rho		Online Purchases before Covid-19	Potential Recovery from Covid-19	Vaccination and Measures Effectiveness	Fear_Covid19	Online_Buying_During_Covid19
Online Purchases will continue after Covid-19	Correlation Coefficient	,504**	,026	,105	,209*	,388**
	Sig. (2-tailed)	,000	,780	,258	,024	,000
	N	117	117	117	117	117
**. Correlation is significant at the 0.01 level (2-tailed).						
*. Correlation is significant at the 0.05 level (2-tailed).						

Source: Own processing

Table 4.4 Linear Regression of online purchases after Covid-19

Model Summary	R	R Square	Adjusted R Square	Std. Error of the Estimate	Durbin-Watson
1	,533 ^a	.285	.266	.865	2.097
a. Predictors: (Constant), Online_Buying_During_Covid19, Online Purchases before Covid-19, Fear_Covid19					
b. Dependent Variable: Online Purchases will continue after Covid-19					

Model ANOVA		Sum of Squares	df	Mean Square	F	Sig.
1	Regression	33.673	3	11.224	14.986	.000 ^b
	Residual	84.635	113	.749		
	Total	118.308	116			
Model Coefficients		Unstandardized Coefficients		Standardized Coefficients	t	Sig.
		B	Std. Error	Beta		
1	(Constant)	1.071	.500		2.143	.034
	Online Purchases before Covid-19	.344	.069	.398	4.961	.000
	Fear_Covid19	.159	.096	.139	1.660	.100
	Online_Buying_During_Covid19	.271	.093	.246	2.915	.004

Source: Own processing

5. DISCUSSION

5.1 DISCUSSING THE RESULTS

In this dissertation, was examined the effect of the pandemic of Covid-19, on different aspects of consumer behavior. According to literature review, consumer behavior and attitudes have been greatly influenced by this global health crisis, significantly affecting their spending levels (Song et.al, (2020); Di Crosta et.al, (2021); Hesham et.al, (2021)). Moreover, companies had to adapt to the constantly changing conditions of the environment, in order to survive this global health, economic and social crisis (Masood, 2021). Online market has gained a significant part in people's everyday lives (Bhatti et.al, 2020), while sales of e-commerce and social media usage increased during this period (Andrienko, 2020). Furthermore, crisis situations, like the coronavirus pandemic, lead to scarcity effect, disruption of demand and consumer behavior, like panic buying and stockpiling of emergency products and negative supply performance (Ivanov, 2020).

All these containment and self-protection measures that governments all over the world had to enforce to their people, influenced the way consumers shop, product prices, the kind and quantities of products they purchase, their habits and behaviors (Shah et.al, (2015); Pantano et.al, (2020)). Also, consumer behavior was shifted toward necessities

and was guided by anxiety and COVID-related fear, while consumer behavior towards non-necessities was predicted by depression (Di Crosta et.al, 2021). Concerning the products categories, people have been purchasing great amounts of cleaning products and junk food, while they show greater sensitivity and concern about recycling (Donthu & Gustafsson, 2020). So, from the literature review, it is clear that situations that can threaten personal health and upset social lives, like the coronavirus pandemic, lead to major changes in consumption patterns. Concerning potential long-term behavioral shifts, the period after such a crisis, has been associated with low interest in investment and saving capital, reduced economic growth and increased consumption rate (Jorda et.al, 2020). Moreover, people may be more open to new technologies, more intense digitization and biometric surveillance measures, that might further alter privacy perceptions over time (Pantano et.al, 2020).

To further investigate how the pandemic of Covid-19 influenced different aspects of consumer behavior, we conducted a questionnaire research in a sample of 117 consumers in Greece and analyzed the data with the statistical criteria of correlation coefficient Matrix with Spearman's rho and linear regression analysis. According to the results, only fear of catching Covid-19 was statistically significant related to some of the variables of consumer behavior change, while vaccination and measures effectiveness and potential recovery were not related to consumer behavior change. More specifically, consumers' worries of catching the virus were associated with online purchasing after and during this health crisis, consuming necessities, panic purchasing and consumer concerns about products. All the correlations were positive, meaning as the fear of Covid-19 increases or decreases, so do increase or decrease respectively those certain aspects of consumer behavior. But their relationships are weak or medium, while according to the variables' correlations, fear of catching Covid-19 is more associated with consumer concerns about products and online buying during Covid-19.

Furthermore, we investigated which of the related aspects of consumer behavior are better predicted by the fear of catching the virus, using linear regression. As was expected from the weak to medium correlations, fear of Covid-19 may predict the variability of the dependent variables but at a very low degree. More specifically, it can explain 4.9% of online purchases after the pandemic, 3.9% of consuming necessities, 4.4% of panic purchasing, 14.7% of consumers' concerns about products and 10.1% of online buying during the pandemic. So, according to the results fear of covid-19 can

explain at a significant but quite low level, certain aspects of consumer behavior, with a bigger influence on their concerns about products and online buying during this period. So, the hypothesis that fear of Covid-19 has affected some aspects of consumer behavior is true, but with a weak to medium influence.

Finally, we predicted whether consumers' intention to keep on buying products online after the end of this health crisis, will be affected by the variables of fear of Covid-19, online purchasing before and during the pandemic, potential recovery from Covid-19 and vaccination and measures effectiveness. First, from the correlation analysis was discovered that the potential of shopping online after the end of the pandemic is statistically significant and positively associated with online purchasing before and during this period with a medium to high association, as well as with fear of Covid-19 with a weaker association. Then, from the linear regression analysis was found a statistically significant connection with online purchasing before and during the pandemic of Covid-19 and can be predicted in a weak to medium level of 28.5%. So, the tendency of consumers to continue shopping online can be explained in a moderate way by online shopping before and after the pandemic, but not by fear of Covid-19.

So the research results, agree with the literature review about the influence of the coronavirus pandemic on consumer behavior change. More specifically, it seems that during this period, the fear of people about catching Covid-19, has led them to buy more the necessities, make panic purchases, turn to online shopping during and after this health crisis and increase their concerns about product characteristics, such their prices, quality, availability and safety. Furthermore, there is a connection among shopping online before and during the coronavirus pandemic, with the potential of continue online purchases after the end of this health, economic and social crisis. However, there was no evidence of significant connection among fear of Covid-19 and consuming non-necessities, stockpiling, shopping satisfaction, consuming frequency and shopping cart, or awareness of their environmental and social concerns, like was found in the examined literature review. As a result, it is evident that fear of the coronavirus pandemic has changed some aspects of consumer behavior, particularly their concerns about products and their online shopping.

5.2 LIMITATIONS & SUGGESTIONS

The present dissertation, concentrated on the effects of Covid-19 on consumer behavior patterns, as according to the literature, in times of crisis situations people change their way and attitudes of consuming. In the research, participated a convenient number of 120 people, while 3 were excluded from the sample, as their residence the last two years was not Greece and the research focused only on the domestic market. The limitations set by the Covid-19 pandemic, made it difficult for the researcher to approach and find a bigger sample for the survey. To overcome this communication obstacle, we exploited the power of the internet and social media, to convince more people to participate in the research. Moreover, the time limitation played a significant role, as the survey was conducted during a very limited time period of 1 week in October 2021, in order to collect, analyze and present the results on time.

This survey could be conducted in different time periods, with 3 to 6-month distance and do a follow-up analysis of the data, in order to observe any significant differences in consumer behavior, among the different waves of Covid-19. This could be a very interesting continuation of the present research, that could show the evolution of consumer behavior change, during the waves of the coronavirus pandemic. Also, a factorial analysis could be conducted to limit more the variables and the results of the study. Finally, in this study was successfully analyzed with a convenient sample the consumer behavior changes during the Covid-19 pandemic. The results of the study add important information to the existing literature, both for research purposes and for business marketing executives, to help them adapt and implement appropriate business strategies.

CONCLUSION

To conclude, in the theoretical part of the dissertation, were presented the definitions and concepts of consumer behavior and consumption, the factors of influence and Kotler's black box of consumers' decision-making process. Then, were further investigated the consumers' and retailers' challenges that had to face during the coronavirus pandemic, the changes in consumer behavior that occur in times of crisis, like a pandemic, as well as the potential long-term behavioral shifts. Then, on the part of the quantitative research, was conducted a questionnaire survey to 117 consumers in Greece, with the aim of investigating the effects of Covid-19 on consumer behavior, as

well as the potential of people shopping online after the end of the pandemic. According to the research results, there is relevance with the examined literature review about the influence of the coronavirus pandemic effects on consumer behavior change. More specifically, fear of catching Covid-19 has led consumers to buy more the necessities, make panic purchases, turn to online shopping during and after this period and increase their concerns about product characteristics, such their prices, quality, availability and safety. Furthermore, there was found a relationship among shopping online before and during the coronavirus pandemic, with the potential of continue online purchases. Last, the results of this dissertation consist important evidence of the social, economic and behavioral impact of the pandemic on humans and are particularly useful for research purposes, but also for the business world and especially marketing executives.

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APPENDIX

Questionnaire

Changes in consumer behavior during the Covid-19 pandemic



INFORMATION FORM

Dear participant,

My name is Konstantinos Papoutsis and I am a postgraduate student of the MSC in Management, in International Hellenic University. As part of my postgraduate studies, I will conduct a research project in the context of my dissertation. The title of my research paper is "Changes in consumer behavior during the Covid-19 pandemic" and its purpose is to study how the Covid-19 pandemic influenced and changed consumer behavior. Furthermore, will be predicted whether those changes in consumer behavior, will remain after the end of the pandemic.

I am looking for volunteers over the age of 18, who live in Greece, that have conducted purchases and are currently purchasing products during this period of the Covid-19 pandemic, in order to participate in this research. The answers have to be given by referring to the COVID-19 emergency period, compared to everyday life before the outbreak. If you agree to participate in this study, you will be asked to complete the questionnaire and answer the questions with complete honesty. The whole process will not take more than 10 minutes. You will be free to withdraw from the study at any stage, with no need to explain the reason of withdrawal. All data will be anonymous and confidential. Your help will be valuable for my study. Thank you in advance for your time!

1. Form of Consent *

Tick all that apply.

	Accept
I have read and understood the information form about current research and this consent form	<input type="checkbox"/>
I had the opportunity to ask any questions about my participation	<input type="checkbox"/>
I understand that I have no obligation to take part in this study	<input type="checkbox"/>
I understand that I have the right to withdraw from this study at any stage without stating the reasons	<input type="checkbox"/>
I understand that if I refuse or withdraw from the study there will be no consequences for me	<input type="checkbox"/>

Demographics

Description (optional)

Gender *

- Male
- Female

Age *

- 18-28
- 29-39
- 40-50
- >50

Marital status *

- Married
- Divorced
- Single

Annual Income *

- <= 5.000€
- <= 10.000€
- <=20.000€
- > 20.000€
- Other...

Education *

- Doctoral degree
- Master degree
- University degree
- Primary degree

The following questions concern the consumer behavior during the pandemic of Covid-19, while comparisons will be made, regarding current consumer behavior, in relation to the period before Covid-

My behavior as a consumer has changed during the Covid-19 pandemic *

	1	2	3	4	5	
Totally disagree	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	Totally agree

I have felt the need to buy larger amounts of Necessities products (food, health and wellness products, personal hygiene products, house cleaning products) compared to *

	1	2	3	4	5	
Totally disagree	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	Totally agree

I have felt the need to buy Necessities that didn't need before *

	1	2	3	4	5	
Totally disagree	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	Totally agree

During COVID-19 emergency, I have spent more money weekly for Necessities products, *
than before

	1	2	3	4	5	
Totally disagree	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	Totally agree

I have felt the need to buy larger amounts of Non-necessities products (products for fun and entertainment) compared to before *

	1	2	3	4	5	
Totally disagree	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	Totally agree

I have felt the need to buy Non-Necessities that didn't need before *

	1	2	3	4	5	
Totally disagree	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	Totally agree

During COVID-19 emergency, I have spent more money weekly for Non-Necessities products, than before *

	1	2	3	4	5	
Totally disagree	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	Totally agree

At that time, the purchase of the Non-necessities products were useful to me *

	1	2	3	4	5	
Totally disagree	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	Totally agree

I stockpiled Necessities during the pandemic *

	1	2	3	4	5	
Totally disagree	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	Totally agree

I stockpiled Non-necessities during the pandemic *

	1	2	3	4	5	
Totally disagree	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	Totally agree

The pandemic pushed me to make panic purchases *

	1	2	3	4	5	
Totally disagree	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	Totally agree

I have impulsively bought Necessities products during the Covid-19 pandemic *

	1	2	3	4	5	
Totally disagree	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	Totally agree

I have impulsively bought Non-Necessities products during the Covid-19 pandemic *

	1	2	3	4	5	
Totally disagree	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	Totally agree

Before Covid-19 I made online purchases *

	1	2	3	4	5	
Totally disagree	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	Totally agree

During this period, my online purchases have increased compared to before *

	1	2	3	4	5	
Totally disagree	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	Totally agree

After the Covid-19 pandemic, I will continue to shop online *

	1	2	3	4	5	
Totally disagree	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	Totally agree

I am satisfied from my shopping experience during this period *

	1	2	3	4	5	
Totally disagree	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	Totally agree

I am satisfied from online shopping during this period *

	1	2	3	4	5	
Totally disagree	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	Totally agree

The frequency of my purchases has increased *

	1	2	3	4	5	
--	---	---	---	---	---	--

My shopping cart has increased *

	1	2	3	4	5	
Totally disagree	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	Totally agree

I was concerned about access to products *

	1	2	3	4	5	
Totally disagree	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	Totally agree

I was concerned about product availability *

	1	2	3	4	5	
Totally disagree	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	Totally agree

I am more concerned about product prices *

	1	2	3	4	5	
Totally disagree	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	Totally agree

I look more for offers and sales in products than before *

	1	2	3	4	5	
Totally disagree	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	Totally agree

I am more concerned about product quality and safety *

	1	2	3	4	5	
Totally disagree	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	Totally agree

The pandemic has increased my environmental concerns *

	1	2	3	4	5	
Totally disagree	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	Totally agree

I care more about companies' social responsibility *

	1	2	3	4	5	
Totally disagree	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	Totally agree

I have often thought, that me or people close to me, were infected with the virus *

	1	2	3	4	5	
Totally disagree	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	Totally agree

I have often thought, that me or people close to me, will be infected with the virus *

	1	2	3	4	5	
Totally disagree	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	Totally agree

...

I think the self-protection measures and the vaccination can protect us from the virus *

	1	2	3	4	5	
Totally disagree	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	Totally agree